CLAIMS

What is claimed is:

1. A controller (32) for a vehicular system (10) having a hand-wheel (16) and an electric motor (34), the controller comprising:

a torque-assist function (56) responsive to a signal indicative of the hand-wheel (16) torque for providing a torque-assist command to the motor (34); and

a steering-pull compensator (52) responsive to a signal indicative of a valid detection cycle for modifying said torque-assist command to the motor (34) by an offset corresponding to a detected steering-pull condition.

2. A controller (32) as defined in Claim 1, further comprising:

at least one summing function (58) in signal communication with said torque-assist function (56) and with said steering-pull compensator (52) for summing the provided torque-assist command with the offset corresponding to a detected hand-wheel (16) pull condition.

3. A controller (32) as defined in Claim 1, said steering-pull compensator (52) comprising:

a filter (60) responsive to the signal indicative of hand-wheel torque.

4. A controller (32) as defined in Claim 1, said steering-pull compensator (52) comprising:

a condition processing block (62) for determining if the vehicle is being driven in a substantially straight path.

5. A controller (32) as defined in Claim 1, said steering-pull compensator (52) comprising:

an enable block (66) for validating the detected steering-pull condition.

6. A controller (32) as defined in Claim 5, said steering-pull compensator (52) comprising:

an enabling switch (64) for receiving a binary control signal from said enable block.

7. A controller (32) as defined in Claim 1, said steering-pull compensator (52) comprising:

a function block (68) for preventing an offset correction corresponding to a detected steering-pull condition from exceeding a desired value.

8. A controller (32) as defined in Claim 6, said steering-pull compensator (52) further comprising:

a delay unit (70) for delaying the offset correction until the enabling switch (64) transitions off-to-on.

9. A controller (32) as defined in Claim 8, said steering-pull compensator (52) further comprising:

a summing function (72) for adding the delayed offset correction to a previous offset value.

10. A controller (32) as defined in Claim 1, said steering-pull compensator (52) comprising:

a memory switch (74) for receiving its own output signal at its primary input terminal.

11. A controller (32) as defined in Claim 2, said steering-pull compensator (52) comprising:

a function block (76) for providing a signal to a non-inverting input of the summing function (58).

12. A method for controlling a vehicular system having an electric motor (34) and a hand-wheel (16), the method comprising:

receiving a signal indicative of a torque applied to the hand-wheel (16);

providing a torque-assist command to the motor (34) in response to the received torque signal;

detecting an enabling signal;

quantifying a steering-pull condition in response to the received and detected signals; and

modifying the torque-assist command to the motor (34) by an offset corresponding to the quantified steering-pull condition.

13. A method as defined in Claim 12, further comprising:

monitoring a vehicle ignition signal;

recognizing an off-to-on transition of the monitored ignition signal;

disabling the enabling signal in response to the recognized transition;

determining whether at least one of the duration of the monitored ignition signal exceeds a threshold duration value and the distance traveled by the vehicle exceeds a threshold distance value; and

enabling the enabling signal in correspondence with said determining when the duration exceeds the threshold.

14. A method as defined in Claim 13, further comprising:

recognizing a cycle as an off-to-on transition of the monitored ignition signal followed by an on-to-off transition of the monitored ignition signal; and

storing a steering-pull compensation value corresponding to the quantified condition into a memory location upon detecting of an enabled enabling signal for a recognized cycle.

15. A method as defined in Claim 14, further comprising:

adding the stored steering-pull compensation value to the provided torque-assist command at the beginning of a cycle in accordance with the steering-pull compensation value stored in a previous cycle.

16. A method as defined in Claim 14, further comprising:

adding the stored steering-pull compensation value to the provided torque-assist command at the beginning of a cycle in accordance with the steering-pull compensation values stored in a plurality of previous cycles.

17. A method as defined in Claim 14, further comprising:

retrieving at least one steering-pull compensation value stored in a previous cycle for analysis during vehicle service.

18. A method as defined in Claim 14, further comprising:

writing a modified steering-pull compensation value corresponding to an adjusted vehicular mechanical specification into a memory location following corrective vehicle service.

19. A method as defined in Claim 14, further comprising:

writing a zero steering-pull compensation value into a memory location following vehicle service.

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20. A controller (32) for a vehicular system (10) having a hand-wheel (16) and an electric motor (34), the controller comprising:

means for receiving a signal indicative of hand-wheel torque;

means for providing a torque-assist command to the motor (34) responsive to said receiving means;

means for detecting an enabling signal; and

means for modifying said torque-assist command to the motor (34) by an offset corresponding to a detected hand-wheel (16) pull condition responsive to said detecting means.

21. A method as defined in Claim 13 wherein the threshold duration value is about five minutes.

22. A method as defined in Claim 13 wherein the threshold distance value is about three miles.

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